

FEDOROV, Nikolay Sergeyevich; AKIMOVA, Aleksandra Aleksandrovna;
ROSOVSKIY, V.M., red.; KUZ'MINYKH, A.A., red. izd-va;
KARLOVA, G.L., tekhn. red.

[Analysis of industrial traumatism in the lumbering industry]
Analiz proizvodstvennogo travmatizma v lesnoi promyshlennosti.
Moskva, 1963. 31 p. (MIRA 16:7)
(Lumbering--Accidents)

AKIMOVA, A.A.; GAVRILOV, N.I.

Electroreduction as a method of studying proteins. Reduction of
some diketopiperazines. Zhur. ob. khim. 31 no.1:38-42 Ja '61.
(MIRA 14:1)

1. Moskovskiy gosudarstvennyy universitet.
(Piperazinedione)

AKIMOVA, A.A.; AKIMOVA, L.N.

Behavior of some dipeptides in prolonged thermal extraction with organic solvents. Vest. Mosk. un. Ser. 2: Khim. 18 no.5:62-64 S-O '63. (MIRA 16:11)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.

AKIMOVA, A.D.

KIVENKO, S.F.; LUK'YANOV, N.Ya.; PAKHIRKO, A.A.; BEZDENEZHNYKH, V.,
retsensent; BORISOV, S., retsensent; KOSTYGOV, V.V., redaktor;
AKIMOVA, A.D., redaktor; GOTLIB, E.M., tekhnicheskii redaktor.

[Production of condensed and powdered milk in butter plants] Proiz-
vodstvo zgushchennogo i sukhogo moloka na maslodel'nykh zavodakh.
Pod red. V.V.Kostygova. Moskva, Pishchepromizdat, 1954. 153 p.
(Milk, Condensed)(Milk, Dried) (MLRA 8:3)

AKIMOVA, A.G.

NIKOLAYEV, G.A., doktor tekhnicheskikh nauk, professor, redakter; AKIMOVA,
A.G., redakter; TIKHONOV, A.Ya., tekhnicheskiy redakter.

[Machines, instruments and apparatus used by the Moscow Higher
Technical School] Mashiny, pribory i apparaty, razrabotannye MVTU.
Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1956 63 p.
(MLRA 9:5)

1. Moscow. Moskovskoye vysshoye tekhnicheskoye uchilishche.
(Machinery) (Engineering--Study and teaching)

PHASE I BOOK EXPLOITATION

1049

Kabardino-Balkar A.S.S.R. Statisticheskoye upravleniye

Narodnoye khozyaystvo Kabardino-Balkarskoy ASSR; statisticheskiy sbornik.
(National Economy of the Kabardino-Balkar A.S.S.R.; Collection of
Statistics) Nalchik, Kabardino-Balkarskoye knizhnoye izd-vo, 1957. 112 p.
1,000 copies printed.

Additional Sponsoring Agency: U.S.S.R. Tsentral'noye statisticheskoye
upravleniye

Compilers: Leshchenko, Ye.V., Zakharov, (V., Akimova, A.G., Mol'kov, I.P.,
Zhiveynova, I.F., Sukhova, N.N., and Agaronyan, P.K.; Chief Ed.: Zimovnov, L.I.,
Chief, Kabardino-Balkar S.S.R. Statistical Administration; Ed.: Sukhova, N.N.;
Tech. Ed.: Tkhakakhov, B. Zh.

PURPOSE: This book is intended for economists and economic statisticians.

COVERAGE: This is a statistical compilation containing the conventional statistical data on the development of the national economy within the present-day limits of this Republic. Recent statistical data are contrasted with those for 1940, and in some cases also with those for 1923 and 1913. In many

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National Economy of the Kabardino-Balkar A.S.S.R.; Collection (Cont.) 1049

cases, when describing the state of national economy as of today, the compilers list figures for individual rayons and for the town of Nal'chik. Output in physical units is available only for basic commodities.

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National Economy of the Kabardino-Balkar A.S.S.R.; Collection (Cont.) 1049

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Freight turnover; motor transport; railways

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Retail sales; number of retail enterprises and public dining halls;
commodities at the market; warehouses of consumers' cooperatives; profit
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Personnel
Total number of workers; number of specialists per type of trade;
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Number of hospital beds; number of physicians; nurseries; sanatoria

AVAILABLE: Library of Congress

Card 3/3

MM/fal
1-22-59

AKIMOVA, A.M.; PINEGINA, N.L.

Primary suture in antrotomy in breast-fed infants and young children. Trudy mol. nauch. sotr. MONIKI no.1:65-69 '59

(MIRA 16:11)

1. Iz Otorinolaringologicheskoy kliniki Moskovskogo oblastnogo nauchno-issledovatel'skogo klinicheskogo instituta imeni Vladimirskogo.

*

AKIMOVA, A.N.

Chronic myeloid leukemia of a megakaryothrombocytic form.

Trudy mol. nauch. sotr. MONTIKI no.1:182-183 '59

(MIRA 16:11)

1. Iz 2-y terapevticheskoy kliniki (zav. prof. N.A. Al'bov)
Moskovskogo oblastnogo nauchno-issledovatel'skogo klinicheskogo
instituta imeni Vladimirskogo.

*

... wool treated by HCHO and ironed (cf. Pehelin and Simeleva, C.A. 49, 7277b). HCHO in 2 g wool was detd. by the Fowes-Pless method (C.A. 33, 67049). The wool ironed at 190-210° after the treatment with HCHO contained 5.7% HCHO and after washing 3.44%. Wool treated with HCHO alone contained 5.23 and 3.41% HCHO. Wool ironed up to 190° ...

DVORZHAK, Iozef [Dvorak, Josef]; DAN'KO, Yu.T., inzhener [translator];
AKIMOVA, A.V., kandidat tekhnicheskikh nauk, redaktor; TOMBOVTSOVA,
S.S.; PANKOVA, V.M., redaktor; KIRSAKOVA, N.A., tekhnicheskii
redaktor

[Usovershenstvovaniia v oblasti kholodnoi obrabotki metallov.
Perevod s cheshekogo inzhenera IU.T.Dan'ko. [Moskva] Izd-vo
VTsSPS Profizdat, 1956. 207 p. (MLRa 10:2)
(Metals--Gold working)

SMUSHKEVICH, Yu.I.; BELOV, V.N.; KLEYEV, B.V.; AKIMOVA, A.Ya.

Reaction of olefins with aldehydes. Part 2: Reaction of chloro-
acetaldehyde with cyclopentene. Zhur.org.khim. 1 no.2:288-289
F '65. (MIRA 18:4)

1. Moskovskiy khimiko-tehnologicheskij institut imeni D.I.
Mendeleeva.

AKIMOVA, B.Ye.

Substituting fish hot-air treatment for frying in oil before canning.
Izv.vys.ucheb.zav.; pishch. (tekhn. no.3:92-95 '63. (MIRA 16:8)

1. Astrakhanskiy tekhnicheskiy institut rybnoy promyshlennosti
i khozyaystva, kafedra tekhnologii rybnykh produktov.
(Fish, Canned)

KONSTANTINOV, R.M.; AKIMOVA, G.M.; KHETCHIKOV, L.N.; KOROSTELEV, P.G.

Zinc content of rocks from the Tetyukhe skarn-complex ore deposits.
Soob.DVAFAN SSSR no.10:262-264 '59. (MIRA 13:11)

1. Dal'nevostochnyy politekhnicheskiiy institut im.V.V.Kuybysheva
i Dal'nevostochnyy filial Sibirskogo otdeleniya AN SSSR.
(Zinc--Analysis) (Tetyukhe Valley--Ore deposits)

AKIMOVA, G.N.

Direction and sources of the detrital material of the Upper Riphean
sediments in the Zilmerdak series of the Southern Urals. Dokl. AN
SSSR 158 no.5:1099-1101 0 '64. (MIRA 17:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologicheskiiy institut. Pred-
stavleno akademikom N.M.Strakhovym.

TEMNIKOVA, T.I.; KARAVAN, V.S.; SEMENOVA, S.N.; ATAVIN, A.S.; MIRSKOVA,
A.N.; CHIPANINA, N.N.; PRELOVSKAYA, R.A.; AKIMOVA, G.S.;
CHISTOKLETOV, V.N.; PETROV, A.A.; MINGALEVA, K.S.; GOLODOVA,
K.G.

Letters to the editors. Zhur. org. khim. 1 no.11:2076-
2078 N '65. (MIRA 18:12)

1. Leningradskiy gosudarstvennyy universitet (for Temnikova,
Karavan, Semenova). 2. Irkutskiy institut organicheskoy khimii
Sibirskogo otdeleniya AN SSSR (for Atavin, Mirskova, Chipanina,
Prelovskaya). 3. Leningradskiy tekhnologicheskoy institut
imeni Lensovetu (for Akimova, Chistokletov, Petrov).

PETROV, A.A.; BABAYAN, V.O.; AKIMOVA, G.S.

Direction of the addition of methyl hypochlorite to 1,2- and
2,3-dichloro-1,3-butadiene. Zhur. org. khim. 1 no. 12:2101-2105
(MIRA 19:1)
D '65

1. Leningradskiy tekhnologicheskii institut imeni Lensoveta.
Submitted September 29, 1964.

AKIMOVA, G. T.

Sep 1947

USSR/Engineering

Sand

Building Materials

"Hydraulic Exploitation of Sand and Gravel Quarries,"
G. T. Akimova, VNIOM, 5 pp

"Mekhanizatsiya Stroitel'stva" No 9

The exploitation of river beds and the beach close offshore permits economical sources of gravel and at the same time provides a method for the cheap transportation of the processed sand and gravel. A well illustrated article, giving diagrams for many of the details involved in the use of sand and gravel bottoms as sources for gravel. This method permits large-scale development, results in low-cost gravel and sand, and permits continuous operation with no danger of collapse as in regular quarries.

All - Union Sci. Res. Inst. Org. + Mech. Construct.

22T33

FEYNBERG, G. M., KOROBINSKIY, M. B.; KRIVISSKIY, A. M.; ROTOV, M. N.; ROGOVSKIY, L. V.;

Komplekti Dorozhnikh Mashin (Sets of Road Machinery), Moscow, 1948.

AKIMOVA, G.T., inzh.

Hydraulic processing and sorting of sand and gravel. Stroi.
prom. 27 no.4:6-10 Ap '49. (MIRA 13:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po organizatsii
i mekhanizatsii stroitel'stva.
(Sand and gravel plants) (Hydraulic machinery)

AKIMOVA, G.Yu.; LIASHKO, V.D.; ROMASHKINA, Ye.V.; CHESNOKOVA, R.F.

Lesions of the oral cavity in secondary and tertiary syphilis.
Vest.derm.i ven. 34 no.3:59-61 My-Je '60. (MIRA 13:10)

(SYPHILIS)

(MOUTH—DISEASES)

AKIMOVA, I.

Providing incentives for raising production quality in the enterprises of the building materials and woodworking industries.
Biul. nauch. inform.: trud i zar. plata 4 no.10:25-28 '61.

(MIRA 14:10)

(Wages--Building materials industry)

(Wages--Woodworking industries)

AKIMOVA I.

AKIMOVA, I., inzh.; GINTSBURG, M., izobretatel'.

Heat the engine but not the radiator. Tekh.mol. 29 no.3:11
'61. (MIRA 14:3)

(Automobile drivers)

AKIMOVA, I.

Regulating wages at the Minsk Reinforced Concrete Plants.

Biul. nauch. inform.: trud i zar.plata no.10:40-44 '59.

(MIRA 13:6)

(Minsk--Reinforced concrete)

(Wages)

AKIMOVA, I., sotrudnik; SHATOVA, T., sotrudnik

Wage payment based on the finished product and the development
of collectivism. Sots. trud 6 no.5:118-123 My '61.
(MIRA 14:6)

1. Nauchno-issledovatel'sk institut truda.
(White Russia—Brick industry)
(Wage payment systems)

SHATOVA, T.; AKIMOVA, I.

Using a group piece rate wage system in industry. Biul. nauch.
inform.: trud i zar. plata 4 no.9:33-39 '61. (MIRA 15:1)
(Piecework)

DYBAN, A.P.; AKIMOVA, I.M.; SVETLOVA, V.A.

Effect of 2,4-diamino-5-chlorophenyl-6-ethyl pyrimidine on the
embryonal development of rats, Dokl. AN SSSR 163 no.6:1514-1517
Ag '65. (MIRA 18:8)

1. Laboratoriya embriologii cheloveku Instituta eksperimental'noy
meditsiny AMN SSSR. Submitted July 14, 1964.

L 33090-66

ACC NR: AP6024072

SOURCE CODE: UR/0020/66/167/001/0228/0231

AUTHOR: Dyban, A. P.; Udalova, L. D.; Akimova, I. M. 29
B

ORG: Institute of Experimental Medicine, AMN SSSR (Institut eksperimental'noy meditsiny AMN SSSR)

TITLE: Relationship between teratogenic action and chemical structure of medicinal substances. Experiments with chloridine and bigumal 22

SOURCE: AN SSSR. Doklady, v. 167, no. 1, 1966, 228-231

TOPIC TAGS: pharmacology, rat, biologic reproduction, drug effect, biologic mutation, antipyretic, circulatory drug

ABSTRACT: Two drugs with similar antimalarial activity - chloridine [pyrimethamine] and bigumal [paludrine] - were administered to pregnant rats to determine whether teratogenic action is a specific property of certain chemical agents or whether such action may arise from injury to the embryo caused by any pharmacological substance. The metabolite formed by bigumal (diaminodihydrotriazine) in the organism has a structural resemblance to chloridine, but it differs from chloridine in having a nitrogen atom in the 5th position instead of a carbon atom. The results of the experiments showed that 77.9% of the fetuses produced by the rats given chloridine were teratic as compared with only 0.2% of the fetuses of the rates given bigumal. It follows then that the teratogenic action

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UDC: 615.751:616-007-053.1+991.392

L 33090-66

ACC NR: AP6024072

of chloridine is not due to antimalarial activity but is a side effect of the compound. The authors concluded that a pharmacological agent cannot have teratogenic action without possessing the properties of an antimetabolite, i.e., the capacity to interfere with key links in the biochemical reactions underlying embryogenesis. This paper was presented by Academician Bakuleyev on 19 April 1965. Orig. art. has: 2 figures and 1 table. [JPRS]

SUB CODE: 06 / SUBM DATE: 16Apr65 / ORIG REF: 003 / OTH REF: 005

Card 2/2 BK

AKIMOVA, I.N.; KVAPISHCHEVSKIY, V.S.

Spectrophotometric study of copper, nickel, and cobalt biuret
complexes of some peptides. Vest.Mosk.un.Ser.2:Khim. 20
no.5:83-84 May '65. (MIRA 18:8)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.

KHLUDOVA, M.S.; AKIMOVA, L.N.

Synthesis of inner-complex compounds of some amino acid derivatives.
Vest. Mosk. un. Ser. 2: Khim. 20 no.2:91-94 Mr-Apr '65. (MIRA 18:7)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.

15-1957-10-13938

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 10,
p 84 (USSR)

AUTHOR: Akimova, K. G.

TITLE: The Problem of the Stratigraphic Subdivision of the Lava
Series of the **Siberian Traps** (K voprosu o
stratigraficheskoy raschlenenii lavovoy svity formatsii
sibirskikh trappov)

PERIODICAL: Tr. N-1. in-ta geol. Arktiki, 1956, vol 89, pp 61-77

ABSTRACT: The traps of the central part of the Tuntusskaya struc-
tural basin are divided into two series: a lower of
tuffs and an upper of lavas. An angular unconformity
between them occurs locally. During geological mapping
in the interstream area between the Kotuy and Kotuykan
Rivers, on a scale of 1:1,000,000, data were gathered
which permit the division of the lava series into four
rock units, each resulting from an outpouring of basal-
tic lava in which flows followed closely one after the
other. The units are separated by zones of weathering

Card 1/3

The Problem of the Stratigraphic Subdivision of the Lava Series of
the **Siberian Traps** 15-1957-10-13938

or by tuffites; these features bear witness to the length of the breaks between the series of eruptions. The thickness of each unit is 110-210 m, and there are 8-15 flows in each. The upper flow of every unit consists of aphanitic basalt, which stands out in relief and may serve as a marker horizon for subdividing the lava series. In the two lower units the amygdules in amygdaloidal rocks consist of quartz, chalcedony, and calcites; in the third unit they are zeolites and aragonite; in the upper unit zeolites, quartz, and calcite fill the cavities. By comparing notes with investigators from adjoining regions, the author concludes that the lava series belongs to the lower part of the Triassic. A definite sequence in the phases of trap vulcanism is marked. The beginning of the first phase, characterized by explosive activity, belongs to the later part of the Permian time. At the end of the first phase, explosive activity began to alternate with periods of quiet outpouring of lavas; this sequence is shown by the alternation of tuffs and flows in the higher horizons of the tuffaceous series. The second phase is

Card 2/3

The Problem of the Stratigraphic Subdivision of the Lava Series of
the **Siberian Traps** 15-1957-10-13938

characterized by the greatest volume and maximum duration of effusive material from fissure eruptions; these eruptions were pulsating. The third phase is chosen provisionally. It is characterized by the predominance of intrusive activity, which was probably associated with the accumulation of the thick series of lava flows, and by a change in tectonic conditions.

Card 3/3

B. I. Omel'yanenko

AKIMOVA, K. I., AKIMOV, G. V.

"A Uniform Specification of Metallic Materials Used in Machine Building
of the USSR" Yedinaya spetsifikatsiya metallicheskih materialov
 mashinostroyeniya Soyuzn Part I, II, M/L 1945

AKIMOVA, K.I.; BAZHENOV, M.F.; BAKHVALOV, G.T.; BEZKLUBENKO, N.P.; BERMAN, S.I.;
BOGDANOV, Ye.S.; BODYAKO, M.N.; BOYKO, B.B.; VINOGRADOV, S.V.;
GAGEN-TORN, K.V.; GLEK, T.P.; GOREV, K.V.; GRADUSOV, P.I.; GUSHCHINA, T.H.;
YEMEL'YANOV, A.K.; YESIKOV, M.P.; ZDZYARSKIY, A.V.; ZAKHAROV, M.V.;
ZAKHAROVA, M.I.; KARGHEVSKIY, V.A.; KOMAROV, A.M.; KORZHENKO, O.T.;
LAYNER, V.I.; MAL'TSEV, M.V.; MILLER, L.Ye.; MILOVANOV, A.I.;
MIRONOV, S.S.; NIKONOROVA, N.A.; OL'KHOV, N.P.; OSIPOVA, T.V.;
OSOKIN, N.Ye.; FERLIN, I.L.; PLAKSIN, I.N.; PROKOF'YEV, A.D.;
RUMYANTSEV, M.V.; SEVERDENKO, V.P.; SEREDIN, P.I.; SMIRYAGIN, A.P.;
SPASSKIY, A.G.; TITOV, P.S.; TURKOVSKAYA, A.V.; SHAKHNAZAROV, A.K.;
SHPICHINETSKIY, Ye.S.; YURKSHTOVICH, N.A.; YUSHKOV, A.V.;
YANUSHEVICH, L.V.

Sergei Ivanovich Gubkin. TSvet.met. 28 no.6:60-61 N-D '55. (MIRA 10:11)
(Gubkin, Sergei Ivanovich, 1898-1955)

AKIMOVA, K.I.; KURDYUMOV, A.V.

Use of alloys of copper with a high nickel and aluminum content for shaped castings. Izv. vys. ucheb. zav.; tsvet. met. no.1:148-153 '58. (MIRA 11:6)

1. Moskovskiy institut tsvetnykh metallov i zolota. Kafedra lit'ya i proizvodstva splavov.
(Copper alloys) (Nonferrous metals--Founding)

ANIM OVA, K.L.

Distr: hEhj/hE2c

New copper-base casting alloys. Y. Y. Atkinson and A.
V. Kuznetsov. *Litvinov Proizvodstvo* 1938, No. 2, 10-12.
Metallographic and mech. properties of a Cu alloy contg
about 10% Ni and Al.

18(7)

SOV/128-59- 5-15/35

AUTHOR: Kurdyumov, A.V. and Akimova, K.I., Candidates of
Technical Sciences

TITLE: Effect of Minor Vanadium, Tungsten, and Boron
Additions on the Structure and Mechanical Properties
of NAMz 12-9-2 Bronze

PERIODICAL: Liteynoye Proizvodstvo 1959, Nr 5, pp 26-28 (USSR)

ABSTRACT: The authors investigate the change of the mechanical
properties (resistance, yield point and elasticity) by
minor vanadium-, tungsten and boron additions to bronze
alloy type NAMz 12-9-2 with iron contents of 0,5%. Fig
(1) shows a micrometal section with various contents
of vanadium. Thus, it can be established that by in-
creasing the contents of vanadium 0,1 - 0,15%, (see
Fig. 1 v,g) the formation of B-phase increases. Fig.
(2 a) illustrates an addition of 0,04% boron, Fig.
(2 b) an addition of 0,1% boron, and Fig. (2 v,g) an
addition of 0,05 - 0,08% vanadium. The results obtained
are summarized in a table, giving also those values

Card 1/2

SOV/128- 59-5-15/35

Effect of Minor Vanadium, Tungsten and Boron Additions on the Structure and Mechanical Properties of NAMz 12-9-2 Bronze

obtained after thermal treatment. (See also Fig. 3, 4, 5). It becomes obvious that vanadium may be added only up to a contents of 0,15 - 0,17%. Tungsten and boron additions have nearly the same effect on the mechanical properties of NAMz 12-9-2 bronze. There are 5 diagrams and 5 references, 4 of which are Soviet and 1 English.

Card 2/2

AKIMOVA, K.I.; OTRADINSKIY, Yu.A.

Calcium loss in bearing BK alloys during repeated melting.
Issl.splav,tsvet.met. no.2:140-144 '60. (MIRA 13:5)
(Babbit metal) (Founding)

KURDYUMOV, A.V.; AKIMOVA, K.I.

Hardening of Br.AMts 9-2 alloys by an addition of nickel. Izv.
vys. ucheb. zav.; tsvet. met. 5 no.4:149-151 '62. (MIRA 16:5)

1. Krasnoyarskiy institut tsvetnykh metallov, kafedra liteynogo
proizvodstva.

(Bromine compounds) (Nickel)

IVANOV, F.M.; AKIMOVA, K.M.

Method for measuring through pores in capillary-porous substances.
Zav. lab. 31 no.11:1360-1361 '65. (MIRA 19:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut transportnogo
stroitel'stva.

AKIMOVA, L. D.:

Akimova, L. D.: "Some problems in the complex mechanization of the construction of support foundations for high-voltage electric transmission lines." Min Higher Education USSR. Leningrad Order of Labor Red Banner Construction Engineering Inst. Chair of Construction Production. Leningrad, 1956. (Dissertation for the Degree of Candidate in Technical Science)

SO: Knizhnaya letonis', No 27, 1956. Moscow. Pages 94-109; 111.

DAVIDSON, Mikhail Genrikhovich, prof., doktor tekhn.nauk; ~~AKIMOVA,~~
~~Lyubov' Dmitriyevna~~, kand.tekhn.nauk; IVANOV-SKOBLIKOV, P.V.,
inzh., red.; KUBNEVA, M.M., tekhn.red.

[Methods for preventing deformations of brick structures
built in winter; a survey] Deformatsii kirpichnykh zdaniy,
vozvedennykh zimoi, i sposoby ikh preduprezhdeniya; obzor.
Leningrad, Leningr.dom nauchno-tekhn.propagandy, 1959. 76 p.
(MIRA 13:2)

(Building. Brick--Cold weather conditions)

GAVRILENKO, I.V.; AKIMOVA, L.D., redaktor; KISINA, Ye.I., tekhnicheskii
redaktor ~~_____~~

[Production of cottonseed oil by continuous action extractor]
Polucheniye khlopkovogo masla na ekstraktorakh nepreryvnogo deistviya.
Moskva, Pishchepromizdat, 1955. 90 p. (MIRA 9:6)
(Cottonseed oil)

ANFIMOV, A.N.; SHKUNDINA, R.M.; FALEYEV, G.A., retsenzent; ASLANOV, V.G.,
retsenzent; AKIMOVA, L.D., redaktor; GOTLIB, E.M., tekhnicheskij
redaktor ~~redaktor~~

[The slaughter and butchering of cattle] Uboi skota i razdelka tush.
Moskva, Pishchepromizdat, 1956. 119 p. (MLRA 10:2)
(Slaughtering and slaughterhouses)

KOROBOV, M.M., dotsent, kand.tekhn.nauk; VOLYANSKIY, P.Ye., spetsred.;
AKIMOVA, L.D., red.; KISINA, Ye.I., tekhn.red.

[Using pneumatic-tube transportation in the food industry]

Opyt primeneniia pnevmaticheskogo transporta v pishchevoi
promyshlennosti. Moskva, Pishchepromizdat, 1957. 37 p.

(MIRA 12:5)

(Food industry--Equipment and supplies)

(Pneumatic-tube transportation)

AKIMOVA, L.D.

DUDENKOV, Arkadiy Yakovlevich; KIVENKO, S.F., retsenzent; BOGDANOV, V.M.,
retsenzent; LUSHIN, M.G., retsenzent; AKIMOVA, L.D., redaktor;
CHREBYSHEVA, Ye.A., tekhnicheskij redaktor.

[Testing and processing milk at receiving points] Priemka i pere-
rabotka moloka na pervichnykh predpriyatiyakh. Moskva, Pishche-
promizdat, 1957. 127 p. (MIRA 10:11)
(Milk--Analysis and examination)

AKIMOVA, L.D.

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Prinimal uchastiye TIMONIN, M.G.; MARDER, I.M., retsenzent;
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AMMOSOV, N.G., inzh.; AKIMOVA, L.D., kand. tekhn. nauk,
dots.; FILIPPOV, N.A., inzh., nauchn. red.; SMIRNOV, N.A.,
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5 (4), 2 (5)

AUTHORS: Stesik, L. N., Akimova, L. N.

SOV/76-33-8-14/39

TITLE: Indirect Method for the Evaluation of the Width of the Reaction Zone in a Detonation Wave

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 8, pp 1762 - 1768 (USSR)

ABSTRACT: An evaluation of the width of the explosion zone (EZ) of various explosive substances is made starting from the dependence of the detonation velocity (DV) on the radius of the explosive charge (EC). The influence of (EC) on (DV) is due to the dispersal of the substance out of the reaction zone so that the width of the (EZ) is determinant of the (DV) as a function of (EC). On the other hand, the dependence of (DV) on (EC), which can be found experimentally, serves to calculate the scope of the zone of chemical reaction in the detonation wave (DW). The width of the (EZ) is determined by the distance between the front of the (DW) and the Zhuge point. In the present case, an experimental curve is plotted which is characterized by the function $D/D_1 = F(R na)$ (1) and holds for various explosives (D_1 = ideal (DV), D = (DV) with the radius R , n = constant co-

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Indirect Method for the Evaluation of the Width of the Reaction Zone in a Detonation Wave SOV/76-33-8-14/39

efficient). The investigations were carried out with charges of trotyl (I) of various densities, hexogen (II), and mixtures of (I) and (II) in different compositions. The (DV) was measured with a photorecorder CFR, the explosions being initiated, in case of charges with a diameter of less than 30 mm, by means of a detonator consisting of TC 40/60. The functional curve (1) for (I) was plotted by means of the function $D/D_1 = f(R)$ (2), which was obtained with densities of 0.80 and 1.46 g/cm³ (Table 1). L. A. Vladimirov. Candidate for Diploma, cooperated in the determination of function (2) for (II) and a number of mixtures of (I) + (II) with various densities (Table 2). The measurement results obtained are in good agreement with equation (1). According to the measurement method (Ref 4), the width of the reaction zone of (I) (density 1.55 g/cm³) was measured by A. N. Dremine by means of magnesium laminas. The values of the function D/D_1 of a/R are given (Table 4), and it is stated that all values calculated for the scope of the reaction zone for different explosives agree with those (EC) for

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Indirect Method for the Evaluation of the Width of the Reaction Zone in a Detonation Wave SOV/76-33-8-14/39

which (DV) shows the ideal value. There are 3 figures, 4 tables, and 7 references, 2 of which are Soviet.

ASSOCIATION: Akademiya nauk SSSR, Institut khimicheskoy fiziki, Moskva
(Academy of Sciences, USSR, Institute of Chemical Physics,
Moscow)

SUBMITTED: January 17, 1958

Card 3/3

10

Structure of submolecular units of proteins. II. Preparation of substituted diketopiperazines with amino acid side-chains. N. I. Gavrilov and L. N. Akimova. *Zhur. Obshch. Khim.* (J. Gen. Chem.) 17, 2101-16 (1947); cf. C.A. 41, 627c. The possibility of the occurrence in proteins of one or more of 4 possible linkages between diketopiperazines (I) and an amino acid (II) is discussed. Linkage between the N of I and the CO of II is ruled out on the basis of the work of Lerman and Gavrilov (C.A. 33, 5502). Linkage between the enolized carbonyl group of I and the CO of II is ruled out because these compds. do not ppt. with picric acid, and I derive. Isolated from proteins do. 2-(Carboxymethylimino)-5-oxopiperazine, or a deriv. thereof obtained from II other than glycine, remains as a possibility. 1,4-Dimethyl-2,5-dioxopiperazine (0.5 g.) and (COCl)₂ (0.29 g.) did not react on refluxing 24 hrs. in Et₂O. An exothermic reaction between 1 g. 1,4-diacetyl-2,5-dioxopiperazine (III) and 1.28 g. (COCl)₂ in 175 ml. Et₂O gave CO₂ and a white ppt. (IV), presumably a chlorination product. IV washed with Et₂O, dried *in vacuo*, and treated with 2.8 g. H₂NCH₂CO₂Et in Et₂O gave a product (0.8 g.) having the correct N content and mol. wt. (Rast) for 1,4-diacetyl-2-(carboxymethylimino)-5-oxopiperazine Et ester (V), m. 135°; no formal titer; 1/2 of the N appeared as amino N on soln. in N NaOH for one hr. When 5 g. III and 5 ml. (COCl)₂ in Et₂O were refluxed 24 hrs. and the washed ppt. treated with an excess of H₂NCH₂CO₂Et, the filtrate (A) yielded with dry HCl 4.5 g. of a product with the correct N content and mol. wt. for 1,4-diacetyl-2,5-bis(carboxymethylimino)piperazine di-Et ester-2HCl (VI), m. 132°, very sol. in H₂O, ppts. with picric acid, gives a ninhydrin reaction only after 0.5-hr. boiling with H₂O; the color of the biuret reaction is typical of dipeptides. The ppt. (B) sepd. from the filtrate (A), partially dissolved in C₆H₆; the residue (B) obtained by evapn. of the C₆H₆ soln., re-crystd. once from AcOEt and once from MeOH, gave 2 g. product with the correct N content and mol. wt. for 2,5-bis(carboxymethylimino)piperazine di-Et ester (VII)-2HCl, m. 141°, very sol. in H₂O, ppts. with picric acid, gives a neg. ninhydrin and a pos. biuret reaction. The portion of the ppt. (B) which did not dissolve in C₆H₆ was re-crystd. from H₂O to give 2.5 g. product with the correct N content for 2,5-bis(carboxymethylimino)piperazine (VIII), m. 340°, very sol. in H₂O, ppts. with picric acid, gives a neg. and a pos. biuret reaction. I (3 g.) and 4.5 ml. (COCl)₂ in 150 ml. Et₂O reacted exothermically to give a ppt. which, with H₂NCH₂CO₂Et gave 0.75 g. of a product, VII(CO₂H)₂, m. 138° (from AcOEt and MeOH), insol. in H₂O, ppts. with picric acid, gives a neg. ninhydrin and a pos. biuret reaction. I (3 g.) and 4.5 ml. (COCl)₂ were mixed, 100 ml. Et₂O added after the heat of reaction subsided, the mixt. refluxed 48 hrs., the Et₂O replaced with C₆H₆, the refluxing continued, the C₆H₆ removed, 6.8 g. H₂NCH₂CO₂Et added to the residue in 150 ml. Et₂O, and the ppt. filtered when the exothermic reaction had subsided, the ppt. dissolved about 1/2 of the ppt., extd. with AcOEt (which dissolved almost nothing), and MeOH C₆H₆ (which dissolved most of the ppt.); the final unextd. residue was I. The AcOEt ext. was evapd. and the residue extd. with Et₂O, giving a cryst. compd. (1.2 g.), m. 136°, insol. in cold H₂O, sol. in hot H₂O, Et₂O, and AcOEt, ppts. with picric acid, contains no Cl⁻; it is presumably RN.CH₂CO.NR.CH₂CO (R = EtO₂CCH₂NHCOCO). The MeOH ext., pptd. with Et₂O, yielded 3.5 g. crystals, m. 142°, very sol. in H₂O and MeOH, insol. in Et₂O and C₆H₆, ppts. with picric acid, contains Cl⁻, gives a pos. ninhydrin reaction; it is presumably VII.2HCl. Powd. I (3.5 g.) was carefully ground with 10.95 g. PCl₅, the

liquid, partially resublimed mass dissd. after 2 days with 5 ml. POCl_3 and the 2,5-dihydro-3,6-dichloropyrazine (IX) pptd. with Et_2O . IX in Me_2CO gave VII.2HCl with $\text{H}_2\text{NCH}_2\text{CO}_2\text{Et}$. The prepn. of IX proceeds with less resinification in CCl_4 . III. Synthesis and properties of some amino acid derivatives of piperazine and dihydro-pyrazine. L. N. Akimova, N. I. Gavrilov, and N. D. Zelinskii. *Ibid.* 18, 648-59 (1948).—The prepn. of IX from I and PCl_5 is described in great detail. CCl_4 is the best solvent; CHCl_3 and C_6H_6 give less satisfactory results. It is important that the PCl_5 contain a trace of POCl_3 initially. While some 2,3,5,6-tetrachloropiperazine is formed its greater soly. in CCl_4 and Et_2O helps to eliminate it from IX. IX, micro monoclinic prisms, m. 80° , decomp. on heating, sol. in Me_2CO , slightly sol. in Et_2O , slowly decomp. with MeOH and EtOH , does not give amino N with H_2O , gives a neg. reaction with picric acid, and a pos. biuret reaction, forms with gaseous Cl an oil from which glycylglycine (X)-HCl can be recrystd. Since alk. hydrolysis of IX could give either glycine or X or both, the development of color in an alk. soln. (N NaOH) of CuCl_2 was compared with that in a similar soln. contg. pure X. After 5, 30, and 120 min. 15.5, 20.6, and 22.6% X were formed. Amino 120 min. after 24 hrs. hydrolysis of IX in N NaOH at room temp. showed 62% glycine formed; after 8 hrs. hydrolysis in 10% HCl at 100° , 79.9% glycine. An attempt to sep. the products of aq. hydrolysis by subjecting an aq. soln. of IX to electrolysis in a 3-compartment cell for 60 hrs. was unsuccessful. $\text{H}_2\text{NCH}_2\text{CO}_2\text{Et}$ -HCl (5.5 g.) in 20 ml. MeOH mixed with 3 g. IX and the soln. concd. in *vacuo* and pptd. with Et_2O gave 91% VII.2HCl, m. 142° . Attempts at deesterification failed to give the dibasic acid (VIII). VII.2HCl after several months is transformed to the tautomeric dihydropyrazine compd., m. 126° . Heating at 100° does not accelerate

the transformation. Similarly, 6.1 g. alanine ethyl ester-HCl in 30 ml. EtOH and 3 g. IX gave 29% 2,5-bis(1-carboxylethylamino)piperazine di-Et ester-2HCl, m. 50° , recrystd. from *p*-dioxane, m. 55° , sol. in H_2O and EtOH , slightly sol. in *p*-dioxane. Di-Et aspartate-HCl (7 g.) in 20 ml. MeOH with 2.5 g. IX gave 57.5% 2,5-bis(1,3-dicarboxylethylamino)piperazine tetra-Et ester (XII)-2HCl, m. 76° , sol. in MeOH and EtOH , insol. in AcOEt , Me_2CO , C_6H_6 , and Et_2O . Diglycylglycine Me ester-HCl (0.88 g.) in MeOH and 0.28 g. IX gave 58% of the triglycyl deriv., m. 175° , very sol. in H_2O , MeOH , and EtOH , insol. in camphor, Et_2O , C_6H_6 , Me_2CO , CHCl_3 , and hydrocarbons. The extinction coeffs. of the biuret complexes of some of the above compds. are plotted as functions of λ . IV. Enzymic hydrolysis of the amidine bond with pepsin and intestinal juice. N. D. Zelinskii, N. I. Gavrilov, and L. N. Akimova. *Ibid.* 960-71.—VII.2HCl in 0.7% aq. soln. at pH 6-7 was not hydrolyzed by a glycerol ext. of canine intestinal mucosa (XII). A similar soln., contg. 0.1% pepsin, was hydrolyzed to the extent of 23 and 26% after 6 and 24 hrs. in 0.5% HCl, 53.7% after 24 hrs. in 1% HCl. XI.2HCl in 0.7% aq. soln. at pH 7 was hydrolyzed by XII to the extent of 75.0% in 32 hrs. and the pH fell to 5. The hydrolyzate gave only weak tests for I or dipeptides. In phosphate buffer at pH 8 hydrolysis was 64.5% complete in 15 hrs. XI.2HCl, treated with 0.1% pepsin in 1% HCl for 14 hrs., was 50% hydrolyzed; the hydrolyzate gave a strong test for I and a completely neg. biuret test. Thus, pepsin seems to have an "amidinase" activity, optimal in 1% HCl, almost negligible in 0.1% HCl, which splits off the amino-acid side chains, leaving the I ring intact. XII lacks this "amidinase" activity but has a specificity for hydrolyzing XI to a dipeptide, which is further hydrolyzed by dipeptidase in XII. Data on the enzymic hydrolysis of silk fibroin and gelatin are interpreted as indicating the presence of amidine compds. in the intact proteins. J. P. Dancby

PA 8/49 T69

USSR/Chemistry - Albumin
Chemistry - Synthesis

May 48

"The Structure of the Micro-Molecule of Albumin, III,"
I. N. Aklmova, N. I. Gavrilov, N. D. Zelinsky, Lab
Chem of Albumin iment Acad N. D. Zelinsky, Lab
State U, 11 3/4 pp

"Zhur Obshch Khim" Vol XVIII (LXX), No 5

Describes synthesis and properties of 2, 5- dichlor-
dihydropyrazine. This was condensed with the esters
of glycol, alanine, aminosuccinic acid and diglycol-
glycine. The absorption spectrum of the copper
complex of the dihydropyrazine-bisdiglycol-glycine
ester had a maximum, corresponding to the free

USSR/Chemistry - Albumin (Contd)
8/49 T69

May 48

diglycol-glycine ester, but it was four times
greater. Develops a working hypothesis on further
possibilities of transforming the micro-molecule
model of albumin into a macro-molecule model.
Submitted 13 Apr 1947.

8/49 T69

AKIMOVA, L. N.

Zelinskiy, N. D., Gavrilov, N. I., Akimova, L. N., "The Structure of the Micro-Molecule of Albumin, No. 4." (p. 960)
(Lab of Chem of Albumin imeni N. D. Zelinskiy, Moscow State U)

SO: Journal of General Chemistry, (Zhurnal Obshchei Khimii), 1948, Volume 18, (80),
No. 5

AKIMOVA, L. N.

Cand Chem Sci

Dissertation: "Certain Transformations of Acylated 2.5-Di-Ketopiperazines at Their Reaction with Amino Acids and Amines." 22/2/50

Moscow Order of Lenin State V imeni M. V. Lomonosov.

SO Vecheryaya Moskva
Sum 71

CA AKIMOVA, L.-N.

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/ Structure of the protein micromolecule. L. N. Akimova.
Vysokhi Khim. 10, 607-715(1950).—Crit. review; 62
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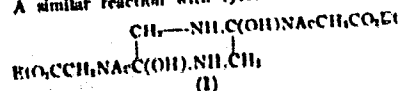
AKIMOVA, L. N.

"On the structure of albumin and its micromolecules," Chem. Achievements, Vol. 19,
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AKIMOVA, L.-N.

CA

Some reactions of diacyldiketopiperazines. L. N. Akimova and N. I. Gavrilov (M. V. Lomonosov State Univ., Moscow). *Doklady Akad. Nauk S.S.S.R.* 73, 1189-92 (1950).—Investigation of the chem. behavior of acylated diketopiperazines indicates a mode of formation of the peptide link that is not equiv. to the reverse reaction of hydrolytic cleavage. Diacetyldiketopiperazine, thus, reacts with $H_2NCH_2CO_2H$, probably with intermediate formation of the corresponding adduct of NH_2 groups to the CO groups, which rearranges to the isomeric *O,O*-di-Ac deriv. by transfer of Ac groups from N to the OH groups; the rearrangement product then spontaneously cleaves either into diketopiperazine and $AcNHCH_2CH_2Rt$ or into $EtOH$ and I. In abs. Et_2O the latter reaction occurs; I with alc. HCl yields $RtOAc$ and $H_2NCH_2CONHCH_2CO_2Rt$. A similar reaction with tyrosine Me ester gives a



product analogous to I but much more stable, since neither in Et_2O nor in $EtOH$ does it split off ROH ; the small amts. of the diketopiperazine obtained as a by-product, however, indicate that the reaction course is similar to that pursued by the glycine deriv. The tyrosine analog of I with alc. HCl rapidly underwent a 100% cleavage to $RtOAc$ and glycyltyrosine Et ester (isolated as the HCl salt). *N,N'*-Bis(chloroacetyl)diketopiperazine with glycine esters yielded the corresponding analog of I, which was not cleaved by sola. in Et_2O or $EtOH$. *N,N'*-Bis(chloroglyoxylyl)diketopiperazine with amino acid esters yields analogs of I, which with excess amino acid ester yields analogs of I without acyl groups on the N atoms, with formation of $EtO_2C-CONHCH_2CO_2Rt$.

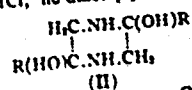
G. M. Kosolapoff

AKIMOVA, L.-N.

CA

Connection between diketopiperazines and amino acids.
L. N. Akimova and N. I. Gavrilov. *Doklady Akad. Nauk*
S.S.R. 74, 251-4 (1960).—1,4-Diacetylated diketopiper-

azines were prepd. by acylation of glycine after suitable blocking. The $[\alpha\text{-C}_6\text{H}_4(\text{CO}_2\text{NHCH}_2\text{CO})]$ group in 1,4-bis(*N*-phthaloylglycyl)-2,5-diketopiperazine (I) is mobile, yielding with $\text{EtO}_2\text{CCH}_2\text{NH}_2$ *exo*-acetylyl(phthaloylglycyl)glycine amidine of dihydropyrazine (II), the synthesis of which shows the possibility of existence of the protein mol. structure proposed by G., et al. (*Vestnik Moskov Univ.*, 1947, No. 7, 67-84; following abstr.), contg. diketopiperazine units forming crosslinks between long polypeptide chains. The ready transfer of these *N*-acyl groups into *exo*-positions when the CO carries an aminoacyl group may be the key to the synthesis of the peptide chain, with diketopiperazine being the intermediate agency. Heating 1.0 g. *N*-phthaloylglycyl chloride and 0.48 g. diketopiperazine in xylene 30 min. on a water bath, then 5 hrs. at 142° gave 83% I, decomp. 385° after washing with H_2O , EtOH , and Et_2O . *p*-MeC₆H₄SO₂NHCH₂COCl similarly gave the 1-(*N*-*p*-tolylsulfonylglycyl)-2,5-diketopiperazine, m. 220° (analysis gives the compn. of a monoacylated deriv., $\text{C}_{17}\text{H}_{18}\text{O}_5\text{N}_4$). Ph-1,4-bis(*N*-benzylsulfonylglycyl)-2,5-diketopiperazine, decomp. 220° (from PhNO_2). I shaken 1 week with 2 moles $\text{EtO}_2\text{CCH}_2\text{NH}_2$ in Et_2O , then treated with dry HCl after filtration, gave unreacted ester, while extrn. of the original ppt. with EtOAc yielded II ($\text{R} = \text{N}[\text{COCH}_2\text{N}(\text{CO}_2\text{C}_6\text{H}_4)\text{CH}_2\text{CO}_2\text{Et}]$, m. 145°, giving *N*-(*N*-phthaloylglycyl)glycine, m. 229.5°, on enzymic cleavage or without the enzyme in the presence of 1% HCl; no diketopiperazine was formed.



G. M. Kosch post

AKIMOVA, L. N.

"Structure of submolecular units of proteins. VI. Preparation of some amides of the dihydropyrazine series and their acylation." by N. I. Garilov, and L. N. Akimova. (p.289)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1951, Volume 21, No. 2

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"Structure of submolecular units of proteins. VII. Some transformations of acylated 2, 5-diketo-piperazines during reaction with aminoacids and amines." by L. N. Akimova and N. I. Gavrilov. (p.294)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1951, Volume 21, No.2

AKIMOVA, L. N.

"The protein, micromolecule. VIII. The action of oxalyl chloride on diketopiperazine and the subsequent transformation of the reaction product into an aridine."
by Gavrilov, N. N. and Akimova, L. N. (p.926)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1951, Volume 21, No. 5

AKIMOVA, L. N.

USSR/Chemistry - Proteins

Jul/Aug 52

"Types of Bonding in Proteins and Methods of
Synthesizing Models of Protein Microstructures,"
N.I. Gavrilov, L.N. Akimova, Moscow

"Uspekhi Khim" Vol XXI, No 4, pp 483-495

Review subject from the viewpoint of work done by
themselves and other USSR investigators. List 33
references, of which 20 are Russian.

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AKIMOVA, L. N.

Chemical Abst.
Vol. 48 No. 9
May 10, 1954
Organic Chemistry

② Chem

Microstructure of protein. X. Substituted N-amino-
acyl derivatives of dioxipiperazines. L. N. Akimova and
M. I. Gavrilov. *J. Gen. Chem. U.S.S.R.* 22: 2207-17
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Some reactions of diacyldioxipiperazines. *Ibid.* 2219-23.—
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Zhur. ob. khim. 22 No. 12, 1952.

9. Monthly List of Russian Accessions, Library of Congress, May 1953, Unclassified.

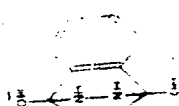
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(MLRA 6:6)
(Proteins)

Chemical Abst.
Vol. 48 No. 6
Mar. 25, 1954
Organic Chemistry

Microstructure of protein. XII. Preparation of free *N*-aminoacyl compound of dioxopiperazine and its derivatives. L. N. Aktimova and N. I. Gavrilov (M.V. Lomonosov State University, Moscow). *Zhur. Obshch. Khim.* 23, 434 (1953); cf. C.A. 48, 1269d. — It has been shown that amidine and *N*-acylamino linkages are possible between dioxopiperazines and amino acids. Thus the possibility of inert polypeptide linkages in proteins is eliminated above the tripeptide stage. Heating 1.1 g. *N*-carboxyglycine anhydride with 0.82 g. dioxopiperazine in xylene until CO₂ evolution ceased, filtering, and washing the ppt. with a little cold H₂O, yielded the insol. solid which gave no anhydride or ninhydrin tests, but did give a biuret test of the tripeptide type after standing in alkali. Evapn. of the aq. filtrate gave dioxopiperazine. The insol. material is a polymer of glycine of unknown structure. To 1.22 g. 1,4-(*N*-phthalylglycyl)-2,5-dioxopiperazine was added 0.25 g. N₂H₄·H₂O in 30 ml. abs. EtOH, the mixt. shaken 1 hr. and the ppt. with EtOH, washed; the filtrate gave *o*-C₆H₄(CONHNH₂)₂ (I), while the ppt. after treatment with aq. EtOH yielded crystals C₈H₈N₂O₂ (II), which when dried in 245° on rapid heating or decompd. at 220° on slow heating, and gave an anhydride and a ninhydrin test after 8 min. heating. When the reaction described above was repeated with 0.5 g. N₂H₄·H₂O and 5 hrs. shaking, the alc. filtrate on evapn. gave I, and passage of HCl into the alc. filtrate from I gave a ppt., m. 198°, identified as N₂H₄·2HCl. The initial ppt. treated with 60% EtOH gave a small amt. of insol. matter while the filtrate slowly deposited cryst. II, decompd. about 220°, giving pos. ninhydrin and anhydride tests. The filtrates on evapn. gave dioxopiperazine. Thus the insol. ppt. probably had the structure III. III (0.8 g.) boiled 1 hr. with

(ONE L)



while the filtrate gave
a white precipitate
which was filtered off
and dried in a vacuum
oven at 100°C. The
residue was a white
solid which melted at
100°C. The filtrate was
evaporated and the
residue was a white
solid which melted at
100°C. The filtrate was
evaporated and the
residue was a white
solid which melted at
100°C.

[illegible]

AKIMOV A, L.M.

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AKIMOVA, L. N.

Chemical Abst.
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Organic Chemistry

3
Carboanhydrides of amino acids as a structural fragment in protein molecules. L. N. Akimova and N. I. Gavrilov (M. V. Lomonosov State Univ., Moscow). *Zhur. Obshchei Khim.* 23, 417-28 (1953). In further attempts to establish the nature of the links of proteins to replace the unlikely simple peptide linkage (cf. *C.A.* 47, 20014) the carboanhydride link was examd. Such links can exist in the form of ring-closing units (true anhydrides) in diacylated piperazine structures, or in the form of simple linear anhydrides. Several simple anhydrides were prepd. and the formation of acylated 2,5-piperazinediones from them was established. Heating 2 g. *N*-phthaloylglycine (I) with 2.5 g. (COCl)₂ 48 hrs. in C₆H₆ gave 99% *N*-phthaloylglycine anhydride (II) [*C*₁₄H₁₀CO₂NCH₂CO₂O, m. 215° (from PhNO₂). This (3.9 g.) heated with 1.1 g. 2,5-piperazinedione in PhNO₂ 0.75 hr. at 140° gave a ppt. of 1,4-bis(*N*-phthaloylglycyl)-2,5-piperazinedione, m. 385° (cf. *C.A.* 45, 10240i) and I. Heating 1.5 g. phthaloylglycylglycine with 1.3 g. (COCl)₂ in C₆H₆ 6 hrs., extn. of the ppt. with Me₂CO, and heating the invol. portion with xylene gave the mixed anhydride *o*-C₁₄H₁₀CO₂NCH₂CONHCH₂CO₂C(O)COCl, decomp. 220° (from PhNO₂). I (0.84 g.) in 10 ml. dioxane treated with 0.4 ml. Et₃N, then at 10° with 0.4 ml. EtO₂Cl, and after 10 min. with 0.84 g. I in dioxane, gave 93% ppt. identified as II, m. 215°. Treatment of 0.94 g. Me₂CH(NHCO₂CH₂Ph)CO₂H (III) in dioxane with 0.45 ml. Et₃N, then with 0.4 ml. EtO₂CCl, and 0.94 g. III in dioxane, gave after 1 hr. (CO₂ evolution) *N*-(benzyloxycarbonyl)alanine anhydride, C₁₇H₁₇O₄N₂, square plates, m. 143° (from PhNO₂). Similarly, PhCH₂OCNHCH₂CO₂H (IV) treated with ClCO₂Et in the presence of Et₃N in dioxane, then with III, gave 50% (PhCH₂OCNHCH₂CO₂)₂O (V), m. 114° (from PhNO₂). A more satisfactory procedure, developed later, for prepn. of the anhydrides is illustrated below: 4.18 g. IV in 20 ml. dioxane was treated with 2.4 ml. Me₂NCH₂CHMe₂, then at 10° with 1.9 ml. EtO₂CCl and after 10 min. with 4.18 g. IV in 20 ml. *N* NaOH, and the ppt. filtered after 5 min., yielding 81% V, m. 119° after.

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cryst. from PhNO_2 it m. 114° , indicating some decompn. on heating. The synthesis is a 2-step process requiring an aq. medium: 2.14 g. IV in dioxane and 1.2 ml. $\text{Me}_3\text{NCH}_2\text{CHMe}_2$ treated with cooling with 0.95 ml. EtO_2CCl , allowed to stand 10 min. mixed with 10 ml. H_2O , gave much CO_2 and yielded 25% V, m. 110° identical with the above. Thus the carbonyl anhydride formed initially reacts either with the Na salt of IV or with H_2O , yielding the same product (V), the difference in the 2 reactions being the by-products. Treatment of (benzyloxycarbonyl)glycylglycine (VI) in dioxane in the presence of Et_3N with EtO_2CCl , then with VI, as above, gave (benzyloxycarbonyl)glycylglycine anhydride, m. 140° (crude), m. 141° (from PhNO_2), which can be crystd. from hot EtOH . Similarly (benzyloxycarbonyl)glycylglycylglycine gave the corresponding anhydride, m. 156° , obtained only in crude state. Shaking 1 g. II 1 hr. with 0.27 g. glycine and 0.28 g. NaOH in 15 ml. H_2O , adding 0.1 g. NaOH, shaking until soln. resulted, neutralizing with HCl , and concg. *in vacuo* gave 53% phthaloyl-glycylglycylglycine, m. 231° . Similar reaction with glycylglycylglycylglycine, although a tetrapeptide biuret test of the reaction product was pos. Glycine (0.37 g.) in 10 ml. N NaOH treated with 2 g. V and acidified after 15 min. gave 75% VI, m. 178° . V treated with glycylglycine in 2 moles N NaOH similarly gave 50% (benzyloxycarbonyl)glycylglycylglycine, m. 190° .

G. M. Kosolapoff

AKIMOVA, L.N.

A.IA Danilevskii's views on protein structure and the reflection
of these ideas in contemporary presentation. Vest.Mosk.un. 9 no.6:
17-30 Je '54. (MLRA 7:8)
(Danilevskii, Aleksandr Iakovlevich, 1838-1923) (Proteins)

AKIMOVA, L. N.

USSR/Chemistry - Albumina

Card 1/1 Pub. 151 - 32/38

Authors : Akimova, L. N., and Gavrilov, N. I.

Title : Carbonaceous amino acid anhydrides as a structural fragment in an albumina molecule. Part 2.-

Periodical : Zhur. ob. khim. 24/2, 361-364, Feb 1954

Abstract : The reaction process during the derivation of mixed anhydrides from carboben-zoxytyrosine and chlorocarbonic ester is described. Ferments which hydrolyze the carboanhydride bond were not discovered in trypsin and pepsin fermentation systems. It was found that the hydrolysis of a carbon glycol anhydride is very smooth in an alkaline medium but becomes retarded in the acid zone of the solution. The effect of hydrogen ion concentrations on the stability of such anhydrides is explained. Three references: 1-USSR and 2-German (1924-1953). Table.

Institution : State University, Moscow

Submitted : July 20, 1953

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USSR

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AKIMOVA, L. N.
USSR/Chemistry - Biochemistry

Card 1/1 : Pub. 151 - 34/37

Authors : Gavrilov, N. I., and Akinova, L. N.

Title : Amount of chain and cyclic alpha-amino acid bonds in an albumin molecule

Periodical : Zhur. ob. khim. 24/3, 563-571, Mar 1954

Abstract : The quantitative participation of tripeptides and diketopiperazines in the formation of an albumin monomer was investigated. The difficulties involved because of the presence of large amounts of prosthetic groups of unknown structure in the albumina are explained. Numerous albumina were characterized by their copper number, by the cyclic form of the bond and absorption spectra of the Cu-complexes inherent in their structure. The determined copper numbers of the albumina offer a quantitative representation of the participation of chain and cyclic bonds in the formation of the albumen. Ten references: 5-USSR; 3-German and 2-USA (1908-1954). Tables; graph.

Institution : State University, Moscow

Submitted : July 20, 1953

AKIMOVA, L. N.

USSR

/ The number of chain and ring α -amino acid links in
protein molecules. N. L. Gavrilov and L. N. Akimova.
J. Gen. Chem. U.S.S.R. 24, 577-84 (1954) (Engl. transla-
tion).—See C.A. 48, 8836b. H. L. H.

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~~AKINOVA, L. N.~~

AKINOVA, L. N.

USSR/Chemistry - Antibiotics

Card : 1/1

Authors : Akinova, L. N., and Gavrilov, N. I.

Title : ~~Structure of Gramicidin C. Part 2.~~ - Study of the Formation of Cupric Gramicidin Complexes

Periodical : Zhur. Ob. Khim., 24, Ed. 6, 1064 - 1078, June 1954

Abstract : Experiments were conducted for the purpose of solving certain unexplained problems connected with the structure of gramicidin in the expectation that this would lead to the synthesis of this antibiotic. Incomplete data show that gramicidin C has a piperazine cycle, formed by phenylalanine and proline. Gramicidin is a dimer. The molecule of the original gramicidin has tripeptide which together with copper in an alkali medium gives a complex with a maximum absorption of 570 - 575 m μ . The displacement of the absorption maximum, toward the short wave band, was observed in the amide-tripeptide complex, containing asparagine. Five references. Tables, graphs.

Institution : State University, Moscow

Submitted : July 20, 1953

AKIMOVA, L. N.

USSR/ Chemistry Polymers

Card : 1/1 Pub. 151 - 31/33

Authors : Akimova, L. N., and Gavrilov, N. I.

Title : About polymers of amino-acids

Periodical : Zhur. ob. khim. 24/8, 1457 - 1464, August 1954

Abstract : The principle difference in the behavior and characteristics of polymers and albumina, is explained. - The most interesting of all polymer characteristics were found to be their copper biuret complexes. The cupric numbers of albumina clearly show the tripeptide nature of individual fragments, whereas the cupric complexes of polymers can most accurately be compared with tetrapeptides and peptides. Twelve references: 7 USA; 1 Japanese; 1 Swiss; 1 German and 2 USSR (1906 - 1954). Tables; graphs.

Institution : State University, Moscow

Subm. : March 15, 1954

AKIMOVA, L.N.

✓ Microstructure of proteins. XIII. Behavior of diacetyldioxopiperazine in its reaction with amines. R. G. Petrova, L. N. Akimova, and N. I. Gavrilov (Moscow State Univ.), *Zhur. Obshchei Khim.* 24, 2230-7 (1954); cf. *CA*, 49, 4667c. Among the various reactions between *N,N'*-diacetyldioxopiperazine (I) with amines is that in which there is formed *N*-acetyldioxopiperazine (II). Shaking I with $H_2NCH_2CO_2Et$ several hrs. in Et_2O gave on extr. with Me_2CO an unstated yield of II, m. 180° , while the soln. yielded the aceturic ester, m. 48° ; the *Me* ester reacts similarly; the result is similar in CH_2Cl_2 . Shaking I with 2 moles $PrNH_2$ in Et_2O with ice-cooling again gave II, and $PrNHAc$. Similarly, I and $PhNH_2$ (2 g. and 1.88 g., resp.) gave 1.5 g. II and $AcNHPh$ in Et_2O solvent, while in C_6H_6 , the yield of II was unstated. $PhCH_2NH_2$ gave 95-8% II. I and $n\text{-Bu}_2NH$ in Et_2O gave 94% II and Hu_2NAc . I and dioxopiperazine (IIa) refluxed 3 hrs. in $EtOH$ gave II. I and 2- $C_6H_4NH_2$ in Et_2O gave 17% II in 3 days; no re-

form. X-ray crystal data confirms this assumption. The m.p. of many of the compds. studied varies with the bath immersion temp. (indicated by I.T.) and with the use of an open capillary tube (O.T.) or an evacuated sealed capillary tube (E.T.) (m.ps. reported without comment are those heated from room temp. in an open tube). Refluxing 80 g. piperazine (III), 520 ml. HCO_2H , and 320 ml. 40% CH_3O for 10 hrs., adding 100 ml. H_2O and 100 ml. concd. HCl , NCH_2CO_2H at $125-30^\circ$ 0.5 hr. gave IIa and aceturic acid, m. 208° . II stirred with alc. $NaOH$ at room temp. gave III. Shaking II with $PhCH_2NH_2$ in abs. $EtOH$ 1 hr. gave IIa and III. Similar reaction with $logNH_2$ in $EtOH$ gave the same result. No reaction took place between I and $PhCH_2NH_2$ in $EtOH$. Heating II in dry alc. HCl gave IIa and $H_2NCH_2CONHCH_2CO_2Et$ (IV), m. 182° . Heating II with Ac_2O gave I. Hydrolysis of II with 0.1N HCl gave IIa and IV, if the reaction is run in dry $EtOH$, alc. $NaOH$ and II gives III.
G. M. Kosolapoff

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~~SECRET~~

Structure of gramicidin C II Formation of copper
complexes of gramicidin

АК. МОУА, К.Н.

AKIMOVA, L.N.

AKIMOVA, L.N.

Action of hydrazine on the N-acyl and N-aminoacyl derivatives
of diketopiperazines. Dokl.AN SSSR 112 no.6:1047-1049 F '57.
(MLRA 10:5)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
Predstavleno akademikom B.A. Kazanskim.
(Piperazinedione)
(Hydrazine)

7
Models of protein microstructures. I. Synthesis of N-
aminoacyl derivatives of phenylalanine anhydride. L. N.
Akimova (State Univ., Moscow). Zhur. Obshch. Khim.
25 1964 8197 Heating phenylalanine anhydride with NH_3 .

4
4E 4j
4E 3d

reaction and hydrolysis to reaction with NH_3 .
Thus, derivs of I have a very labile acyl link as indicated by
facile acylation with acyl halides and by ready cleavage of
the entire aminoacyl group by NH_3 . G. M. Kosolapoff

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AZIMOVA, L.N.; GAVRILOV, N.I.

On protein microstructure. Part 14: Amino acid piperazides. Zhur.ob.
khin. 27 no.6:1562-1565 Ja '57. (MLRA 10:8)

1. Moskovskiy gosudarstvennyy universitet.
(Amino acids) (Piperazine)